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BY: Rose A. Stowe DATE: April 20, 2004
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PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re: Patent Application of : Group Art Unit: 1621
Stephan Heck, *et al.* :
Appln. No.: 09/880,695 : Examiner: Elvis O. Price
Filed: June 12, 2001 : Confirmation No: 6462
For: UNSATURATED PALM OIL FATTY : Attorney Docket
ALCOHOLS : No.: H 3172A PCT/US

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APPELLANT'S SUPPLEMENTAL BRIEF ON APPEAL
UNDER 37 C.F.R. §1.193(b)(2)(ii)

In response to the Office Action, mailed on October 20, 2004 (Paper No. 17), in which the Examiner reopened prosecution subsequent to Appellants' Appeal Brief submitted on July 22, 2003, Appellants submit herewith a Supplemental Brief on Appeal under 37 C.F.R. §1.193(b)(2)(ii), in conjunction with a Request for Reinstatement of the Appeal, appealing the Examiner's rejections of pending claim 3, as set forth in the Paper No. 17. This Supplemental Brief On Appeal is being timely filed as a Petition for a three-month extension of time, up to and including April 20, 2004, including an authorization to charge fees, is being submitted herewith. Appellants' Brief on Appeal submitted on July 22, 2003, is incorporated herein as if set forth in its entirety.

Appellants respectfully request consideration by the honorable Board of Patent Appeals and Interferences and reversal of the Examiner's rejection of claim 3 based on the arguments set forth in the attached brief.

TABLE OF CONTENTS

Table of Contents	2
Real Party in Interest	3
Related Appeals and Interferences	3
Status of the Claims	3
Status of Amendments	4
Summary of Invention	4
Issue	6
Grouping of the Claims	6
Argument	6
I. The Examiner's Rejection Under 35 U.S.C. §102(b) is Improper	6
A. The Rejection of Claim 3 Over Koehler	6
B. Appellants' Traversal	6
C. Law Regarding the Patentability of Product-by-Process Claims	7
D. Koehler Fails to Anticipate the Claimed Invention	7
E. Any Alleged <i>Prima Facie</i> Case of Obviousness	9
Conclusion	10
Appendix A - Claims on Appeal	A-1

REAL PARTY IN INTEREST

The real party in interest in the instant appeal is Cognis Deutschland GmbH & Co. KG, a German company having a place of business at Henkelstraße 67, 40589 Düsseldorf, Germany.

RELATED APPEALS AND INTERFERENCES

Appellants are aware of the appeal in co-pending U.S. patent application serial number 09/874,899, pending before Examiner Price in Group Art Unit 1621, which may directly affect or may be directly affected by or may have a bearing on the Board's decision in the instant appeal. Prosecution has been reopened in the co-pending U.S. patent application, however reinstatement of the appeal will be sought. Appellants are not aware of any other related appeals or interferences which will directly affect or be directly affected by or have a bearing on the Board's decision in the instant appeal.

STATUS OF THE CLAIMS

Claims 3 and 4 are pending in the instant application on appeal. The Examiner has indicated that claim 4 is allowed. Claim 3 is the subject of the instant appeal.

Prior to reopening prosecution, claim 3 stood finally rejected under 35 U.S.C. §103(a), as being unpatentable over U.S. Patent No. 5,672,781 of Koehler, *et al.*, (hereinafter referred to as "Koehler"), for the reasons of record set forth in the final Office Action dated September 18, 2002 (Paper No. 11), the Advisory Action dated April 22, 2003 (Paper No. 14) and the Office Action dated January 16, 2002 (Paper No. 7). This rejection was responded to in Appellants' Brief on Appeal submitted on July 22, 2003, and the rejection has been withdrawn in favor of the "newly presented" rejection set forth in Paper No. 17.

In Paper No. 17, the Examiner rejects claim 3 under 35 U.S.C. §102(b), as being anticipated by Koehler.

STATUS OF AMENDMENTS

No amendments have been filed in the instant application on appeal subsequent to the Examiner's final rejection of claim 3. Appellants' Request for Reconsideration After Final, filed on March 18, 2003 ("the Request for Reconsideration After Final"), has been considered but was not deemed to place the instant application in a condition for allowance, as indicated in Paper No. 14. Appellants' Brief on Appeal submitted on July 22, 2003, has been entered and was sufficient to remove the previous rejection of claim 3 under §103(a), but resulted in the reopening of prosecution. An appendix containing a copy of the claims involved in the appeal, in accordance with 37 C.F.R. §1.192(c)(9), is attached as Appendix A.

SUMMARY OF THE INVENTION

Appellants have discovered a simplified process for preparing mixtures of fatty alcohols with desirable properties. Appellants' claimed invention is directed, on one hand, to the simplified process itself, and on the other hand, to the novel and unobvious products of the inventive process. The simplified process allows for the production of vegetable-based, unsaturated fatty alcohol mixtures which have properties and characteristics suitable for use in a variety of cosmetic products. (*See, e.g.*, Appellants' Spec., p. 3, lines 26-33 & p. 4, lines 13-23). Fatty alcohols with such properties and characteristics had previously been derived in large part from animal fats, however animal-based fatty alcohols are no longer widely accepted by many consumers. (*See, e.g.*, Appellants' Spec., p. 2, lines 1-10 & 24-26) The mixtures of fatty alcohols produced by the process according to one embodiment of the present invention exhibit very desirable iodine values and a preferred alkyl chain *distribution* of predominantly C₁₆/C₁₈ alcohols. (*See, e.g.*, Appellants' Spec., p. 4, lines 13-23 & Example). Moreover, the mixtures of fatty alcohols also have good color and oxidation stability, excellent low-temperature behavior and are virtually odorless. (*See, id.*). The claimed range of iodine values indicate a degree of ethylenic unsaturation which in turn provides a favorable solidification point for cosmetic products. (*See, e.g.*, Appellants' Spec., p. 2, lines 1-5).

To be more specific, one embodiment of Appellants' claimed invention is directed to a process for the preparation of a mixture of fatty alcohols having an iodine number in the range from 65 to 85 and the formula, R^1OH , wherein R^1 is a saturated or unsaturated, linear or branched radical having from 14 to 20 carbon atoms. The process comprises two steps. In an initial step (a), palm oil fatty acid methyl esters are fractionated to produce a first methyl ester fraction comprised substantially of saturated C_{16} esters and a bottom product which is a second methyl ester fraction comprised substantially of unsaturated $C_{16/18}$ esters. In a second step (b), the bottom fraction is hydrogenated to give the corresponding alcohols under conditions such that the carbon-carbon double bonds remain intact. (See, claim 4).

Another embodiment of Appellants' claimed invention is directed to *a mixture of fatty alcohols prepared by the process according to the previously described embodiment*. (See, claim 3). Appellants' have surprisingly discovered that vegetable-based fatty alcohol mixtures which have iodine values in the range from 65 to 85 and which have good color and oxidation stability, excellent low-temperature behavior and are virtually odorless, can be prepared by the process according to the present invention. (See, e.g., Appellants' Spec., p. 4, lines 13-23).

Prior art fatty alcohol mixtures and processes for preparing the same, including that which is described the allegedly obviating reference cited by the Examiner, fail to teach fatty alcohol mixtures with both the claimed iodine values and the resulting alkyl chain distribution. As acknowledged by the Examiner in Paper No. 11, the prior art fails to teach the claimed process *per se*. Each separation step in the processing of fatty compounds, including for example, fractionation and distillation, can alter the spectrum of fatty alkyl chains present in the resulting product. In other words, different processes produce different products, especially when dealing with natural mixtures such as vegetable oils and animal fats.

Appellants are able to prepare vegetable-based, fatty alcohol mixtures having the claimed iodine values, and which exhibit good color and oxidation stability, excellent low-temperature behavior and are virtually odorless, via the novel and unobvious process described above and claimed in the instant application on appeal. It is by way of the materials and process

steps employed in the claimed process that the novel and unobvious fatty alcohol mixtures of the present invention can be obtained.

ISSUE

- (1) Is the Koehler reference, which fails to teach the mixtures of fatty alcohols claimed herein, and which was withdrawn as a basis for an obviousness rejection, also insufficient to support an anticipation rejection of the claimed product-by-process?

GROUPING OF THE CLAIMS

Claim 3 is the subject of the instant appeal. Claim 4 stands allowed. No other claims are pending. For the purposes of the instant appeal, claim 3 stands alone.

ARGUMENT

I. The Examiner's Rejection Under 35 U.S.C. §102(b) is Improper

A. The Rejection of Claim 3 Over Koehler

In Paper No. 17, the Examiner rejects claim 3 under 35 U.S.C. §103(a), as being anticipated by Koehler. The Examiner contends that Koehler discloses "the presently claimed mixture of fatty alcohols having an iodine number of 75 and a hydrocarbon chain (which corresponds to R¹ of formula (I) in claim 3 of the presently claimed invention) radical having from 14 to 20 carbon atoms (see Example 2)." (See, Paper No. 17, p. 2). On this basis, the Examiner argues that Appellants' claimed invention is anticipated by the Koehler reference.

B. Appellants' Traversal

Appellants respectfully traversed the Examiner's obviousness rejection based upon Koehler in the Request for Reconsideration After Final, and initially in Appellants' Request for Reconsideration, filed on July 15, 2002, in response to Paper No. 7.

Appellants again strenuously, but respectfully, traverse the Examiner's rejection and the contentions and arguments in support thereof, for the reasons set forth below.

C. Law Regarding the Patentability of Product-by-Process Claims

It is well-settled that in order for a rejection under 35 U.S.C. §102(b) to be proper, each and every element of the claimed invention must be taught, either expressly or inherently, in a single prior art reference. (M.P.E.P. §2131).

Where product-by-process claims are concerned, it has been held that the Examiner must provide a rationale tending to show that the claimed product appears to be the same or similar to that of the prior art, although produced by a different process, before the burden shifts to applicant to come forward with evidence establishing an unobvious difference between the claimed product and the prior art product. (See, M.P.E.P. §2113, citing *In re Marosi*, 710 F.2d 798, 802, 218 USPQ 289, 292 (Fed. Cir. 1983)).

It is also fairly well-settled that, "even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. If the product in a product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." (See, *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985)).

D. Koehler Fails to Anticipate the Claimed Invention:

The Examiner has contended that Koehler teaches a mixture of fatty alcohols having an iodine number of 75 and having hydrocarbon chains with from 14 to 20 carbon atoms. On this basis, the Examiner has argued that the claimed mixture of fatty alcohols is anticipated.

Appellants respectfully disagree. The claimed invention is not anticipated. It is submitted that the Examiner has not shown that the claimed product is the same as that of the prior art. The Examiner's position is that the iodine value taught by Koehler and the range of carbon chain lengths taught by Koehler, in Example 2 set forth therein, fall within the ranges claimed in the instant application on appeal. The Examiner has not addressed the carbon chain distribution which results from the claimed process steps.

The claimed invention is directed to a *mixture* of fatty alcohols prepared by a process in accordance with the claimed invention. The Examiner has repeatedly pointed out to Appellants that process limitations do not impart patentability to a product-by-process claim.

Appellants do not dispute this facet of the law. *Appellants submit that the process recited in the claim on appeal produces a product (i.e., a mixture of fatty alcohols) which is **different** than the mixtures taught by Koehler.* Further, the Examiner has not provided a rationale to show that the processes produce the same product with the same iodine values **and carbon chain distribution**.

Koehler discloses a mixture of fatty alcohols that has an iodine value within the claimed range, and a range of carbon chains of from C₁₄ to C₂₀. However, the mixture disclosed by Koehler has been subjected to additional processing steps which alter the fatty alcohol profile such that the content of various alcohols is different than the claimed invention.

Appellants have previously indicated that the mixtures of fatty alcohols according to the claimed invention have both an iodine value and alkyl chain *distribution* which is different than the mixtures taught by Koehler because of the process employed in the claimed invention.

While Appellants recognize that the process limitations do not impart patentability to the product-by-process claim on appeal, the processes do produce different products. Thus, it may be helpful to review the differences between the process according to the present invention and the process taught by Koehler, and why each produces a different product. Additionally, Appellants emphasize that the Examiner has indicated that the claimed process is novel and unobvious.

The process of the present invention includes two steps. First, palm oil fatty acid methyl esters are fractionated to produce a first methyl ester fraction comprised substantially of saturated C₁₆ esters and a bottom product which is a second methyl ester fraction comprised substantially of unsaturated C_{16/18} esters. In a second step (b), the bottom fraction is hydrogenated to give the corresponding alcohols under conditions such that the carbon-carbon double bonds remain intact. *In contrast, Koehler does not teach or suggest a fractionation prior to hydrogenation wherein saturated species and unsaturated species are separated.*

Koehler teaches that a C_{12/18} palm kernel (i.e., nut) oil methyl ester, which is already the product of a first fractionation, can be further fractionated to a C_{12/14} and a C_{16/18} methyl ester fraction. The C_{16/18} fraction is then hydrogenated to produce the alcohols, and subsequently distilled, or further fractionated, to remove a head fraction, thus increasing the

unsaturated content. (See, Koehler, col. 3, lines 39-35 and Example 1, col. 4, lines 38-41). The resulting product obtained via the process taught by Koehler has an iodine value of 61.3. (See, Koehler, col. 4, line 58). **Only through further distillation, (see, Example 2), is the iodine value raised to about 75.** Example 3 of Koehler avoids a second distillation by altering the starting materials to include rapeseed oil, as opposed to simply using palm oil derived species. However, a different starting material will also alter the profile of fatty alkyl chains present in the final product.

It is only through the subsequent distillation, and removal of some portion of the hydrogenation product, that the iodine values presently claimed can be achieved via the process of Koehler, using palm oil starting materials. Koehler's only other alternative is to use an entirely different starting material selected to have a higher unsaturated content. **Ultimately, the removal of some portion of the hydrogenation product alters the content of the final alcohol mixture. Each subsequent distillation to remove saturated head fractions can potentially increase or decrease the content of any one or more particular fatty alcohols present in the product.**

Koehler discloses a mixture of fatty alcohols having an iodine value of 75. This mixture contains only about 12% by weight of C₁₆ alcohols and contains about 4% conjugated species. (See, Koehler, Example 2). Mixtures of fatty alcohols according to the claimed invention contain about 18-19% C₁₆ alcohols and have a higher conjugated species content.

The Examiner has not shown how the two different processes produce the same alkyl chain distribution. The Examiner has only stated that the range of carbon chain lengths overlaps. Appellants respectfully submit that this is insufficient to establish anticipation.

E. *Any Alleged Prima Facie Case of Obviousness:*

While the Examiner has apparently withdrawn the previous rejection under §103(a), based upon Koehler, Appellants respectfully traverse any potential obviousness rejection based upon Koehler which may be incorporated into, or implied by, the anticipation rejection. Any such obviousness rejection is traversed on the basis of the arguments originally set for in Appellants' Brief on Appeal.

Appellants' Supplemental Brief On Appeal
Serial No.: 09/880,695
Group Art Unit: 1621

CONCLUSION

In view of the arguments set forth above, Appellants submit that the Examiner's rejection under 35 U.S.C. §102(b) is improper in that the Examiner has failed to establish anticipation of the rejected claim based upon Koehler, and that the claim on appeal patentably distinguishes over the prior art of record and known to Appellants, either alone or in combination. Accordingly, Appellants respectfully request that the Board find for Appellants and reverse the Examiner's rejection.

Respectfully submitted,

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